

# Technical specification sheet

2010

## SG<sup>PLUS</sup> 2500H

(12V250AH/C<sub>20</sub>)

Power Active Carbon Gel Battery



\*\*\* The color and the printed specifications of the products are subject to change without prior notice.

NEWMAX Solar gel batteries are true maintenance-free sealed batteries engineered specially to satisfy the need for frequent deep cycles from PVs and renewable energy storage applications. We are confident that our technology-intensive, long-lasting, and environment friendly SG batteries will provide stability and efficiency for your everyday renewable energy needs.

**01 Longer Life 02 Maintenance Free 03 Leak Free 04 Safety**

High density, anti-corrosion lead calcium alloy is used in harmony with the GEL electrolyte to reduce the sulfation effect significantly.

NEWMAX battery has a gas recombining design that doesn't need maintenance until the end of its life.

Gel Technology is applied to prevent leakage. They won't spill even if the battery is tipped upside down.

Specially designed anti-explosion filter and safety valves prevent gas leakage when overcharged.

### General Feature

✧ Plate	Paste type
✧ Battery type	Sealed and Maintenance free / Non-spillable construction design
✧ Case/cover mat	High-stiffness engineering PP plastic (Heat Deflection Temp. 140℃) RoHS Compliant EU Directive 2002/95/EC
✧ Safety performance	Safety valve & flame arrestor installation for explosion proof.
✧ High quality, high reliability and low self discharge rate ✧ Exceptional deep discharge recovery performance	
✧ Flexibility design for multiple install positions (Position Free, GEL Technology)	
✧ Designed in accordance with and published in compliance with applicable IEC and BS EN, KS stds.	
<ul style="list-style-type: none"> <li>● IEC 60896-21/22 Stationary lead-acid batteries – Valve regulated types</li> <li>● BS EN 61427 Secondary cells and batteries for photovoltaic energy systems (PVES)</li> <li>● KS C 8518 Stationary sealed lead-acid batteries – Valve regulated types</li> </ul>	

### Technical Feature



#### Fahrenheit-Schutz™ Heat Protection Case

Specially Formulated heat and flame resistant PP case material is used to effectively block ambient heat thus preventing heat related malfunctions such as thermal runaway. This proprietary high rigidity case material has heat deflection rating of 140℃.



#### MaxPress™ Grid Technology

Patent pending grid compressing technology which increase the density of the lead grain of the grids. The grain density is typically 400% greater than that of the conventional casting method. This up-to-date grid technology enables our batteries to survive even the toughest deep discharge and PSoC applications.



#### ThixoPure™ GEL Technology

Application of refined pure thixotropic colloidal silica GEL technology to battery electrolyte has greatly increased the cycle life by both preventing plate stratification and providing extra temperature protection against heat and cold. We are the first Korean company to successfully commercialize the GEL technology in the VRLA battery industry.



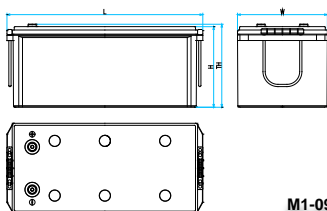
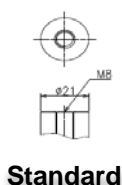
#### FlexSealing™ Anti Explosion Filter

Patent pending proprietary cap filtering and sealing technology. Battery cell caps are sealed simultaneously using specially designed O-ring and explosion filters to prevent leakage and gassing more effectively than ever before.



#### Active Carbon™

In every NEWMAX battery, proprietary active carbon additive is used in the active material for both positive and negative plates to enhance charge acceptance and cycle endurance. Active Carbon™ works to strengthen charge pathways to improve performance consistency and enhance performance at partial state of charge(PSoC) environment.



### Operating temperature range

Discharge	Charge	Storage
-20℃~60℃	0℃~50℃	-20℃~60℃

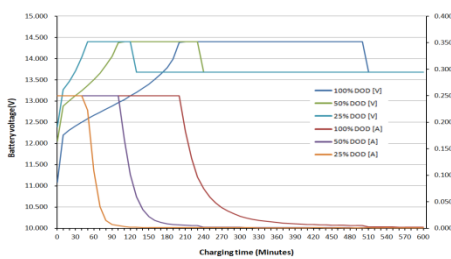
Battery model	SG 2500H (12V250AH / 20 HOUR RATE)			
Capacity (@25℃)	C <sub>20</sub> (1.80VPC)	C <sub>10</sub> (1.80VPC)	C <sub>5</sub> (1.70VPC)	C <sub>1</sub> (1.60VPC)
	250Ah	230Ah	210Ah	152Ah
Dimensions (mm/inch)	Length	Width	Height	Total Height
	524(20.63)	241(9.49)	215(8.46)	221(8.70)
Weight (kg/lbs)	61.5kg (135.6lbs) ±3%			
Internal resistance (mΩ)	2.10 mΩ ±10% (@25℃, 77°F), full charged			
Max. discharge current (5sec)	1770 A	Max. discharge current(continuous)		660 A
Capacity affected by Temperature	@30℃(86°F)	@25℃(77°F)	@10℃(50°F)	@-10℃(14°F)
	105%	103%	95%	78%
Self discharge (@25℃,77F)	After 1 month ≤2%		After 3 month ≤6%	After 6 month ≤12%
Max. short duration discharge current (0.1sec)	4800A±10%			
Recommended charging (@25℃) Solar system	1 <sup>st</sup> Bulk step	2 <sup>nd</sup> Absorption step		3 <sup>rd</sup> Floating step
	0.20~0.25C CC	2.40V/cell CV, (cut-off A : 0.005C)		2.28V/cell CV



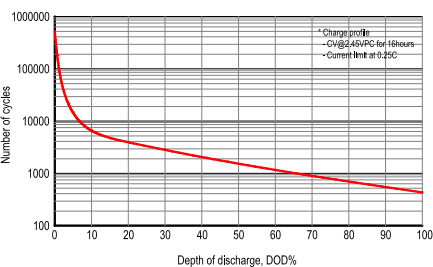
KOREA BATTERY CO., LTD.  
www.newmaxbattery.co.kr

Head office : 134, 1Gongdanro 6gil, Gumi-city, Gyeongsangbuk-do, Korea TEL) +82-54-463-7091~3 FAX) +82-54-463-7094  
Seoul office : 3F Dogok B/D. 14, Nambusunhwanro, 359-gil Gangnam-Ku, Seoul, Korea TEL) +82-2-883-7091 FAX) +82-2-882-7094

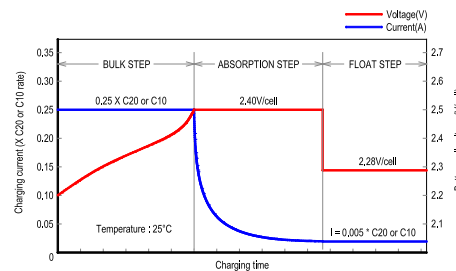
DOD % vs charging time curve (@25°C)



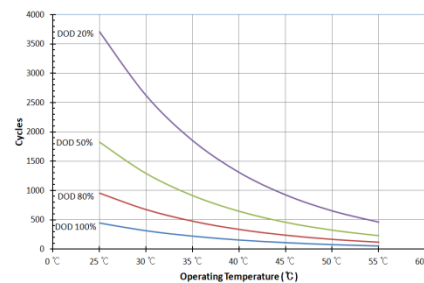
Cycle life vs detail DOD% (@25°C)



Solar charging characteristics (@25°C)

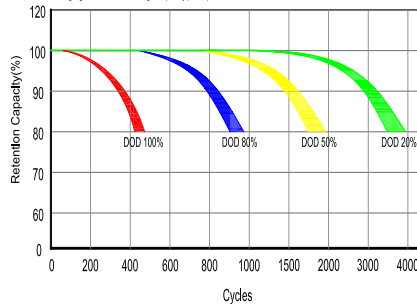


Relationship between cycle life & temp.

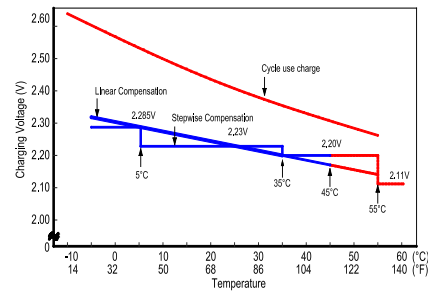


Cycle life characteristics (@25°C)

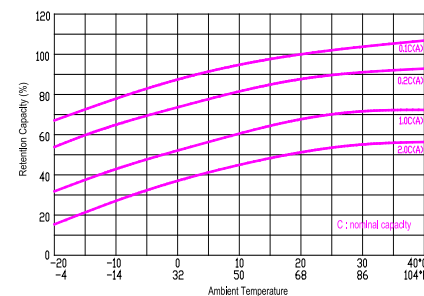
Discharge Current : 0.17C Amphere (cut-off 1.70V/cell) Charging Current : 2.40V/cell, MAX 0.25CA  
Charging : 120% of discharge capacity (25°C)



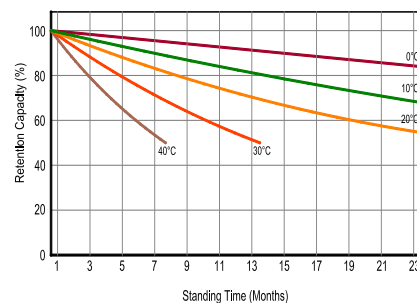
Relationship between charging voltage & temp.



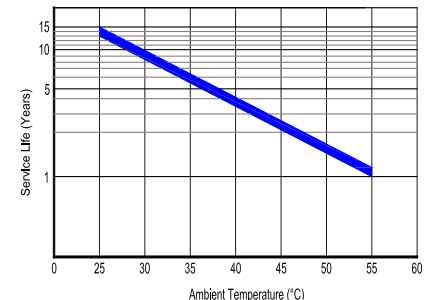
Effect of temperature on capacity



Self discharge



Relationship between Floating life & temp.



Constant current discharge ratings – Amperes per cell @ 25°C

V/cell	Minutes						Hours					
	5	10	15	20	30	40	1	3	5	8	10	20
1.85V	207	202	199	192	164	148	117	54.6	36.0	24.1	21.2	11.5
1.80V	302	289	257	231	194	168	131	59.1	39.3	25.7	23.1	12.5
1.75V	350	324	282	249	201	179	138	59.7	40.3	26.3	23.1	12.5
1.70V	397	353	302	265	210	185	142	61.7	42.1	26.9	23.2	12.5
1.65V	443	384	324	280	222	190	147	63.9	42.4	27.4	23.3	12.6
1.60V	496	421	349	299	234	199	152	65.9	44.0	27.9	23.5	12.7

Constant power discharge ratings – Watts per cell @ 25°C

V/cell	Minutes						Hours					
	5	10	15	20	30	40	1	3	5	8	10	20
1.85V	383	374	368	355	308	279	222	105	69.6	46.8	41.3	22.4
1.80V	543	520	462	420	356	313	247	112	75.2	49.7	44.9	24.3
1.75V	613	576	504	450	368	331	257	114	77.1	50.5	44.9	24.3
1.70V	675	603	540	474	381	338	265	117	80.3	52.1	45.0	24.3
1.65V	741	662	568	498	398	345	276	121	81.2	53.3	45.2	24.4
1.60V	810	705	602	524	420	361	279	124	83.2	53.4	45.8	24.8